

# Runway Extension With a Vegetated Mechanically Stabilized Earth Wall (VMSEW) **PURDUE ROAD SCHOOL - 2017**

**Presented by:**

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# Paoli: story of a small airport with a big idea

County Seat for Orange County

Largest population center in the county  
but had the shortest runway





# Paoli: story of a small airport with a big idea





# Paoli: story of a small airport with a big idea

County Seat for Orange County

Largest population center

*Pilot, "Can I land?"*

*Insurance company, "No"*

*Aircraft rental agreement, "No"*

*Airport, "FAA, can we have a longer runway please?"*

*FAA, "Umm, no."*

*Airport, "Pretty please?"*



# Paoli: story of a small airport with a big idea

County Seat for Orange County

Largest population center

*Town, “Engineer, can we have  
a longer runway please?”*

*Engineer, “Umm, [scratch head],  
umm, [scratch head some more],  
Yes!”*

*Airport, “Hoorah!”*



## Paoli: small airport on a big hill!





Paoli: small airport on a big hill!









## Paoli: small airport and a little hole?





Paoli: small airport and a little hole?



## Paoli: small airport and a little hole?





Paoli: small airport and a little hole?

**DO WE HAVE ANY  
PICTURES FROM THE GO  
PRO THAT WENT DOWN  
THE HOLE?**



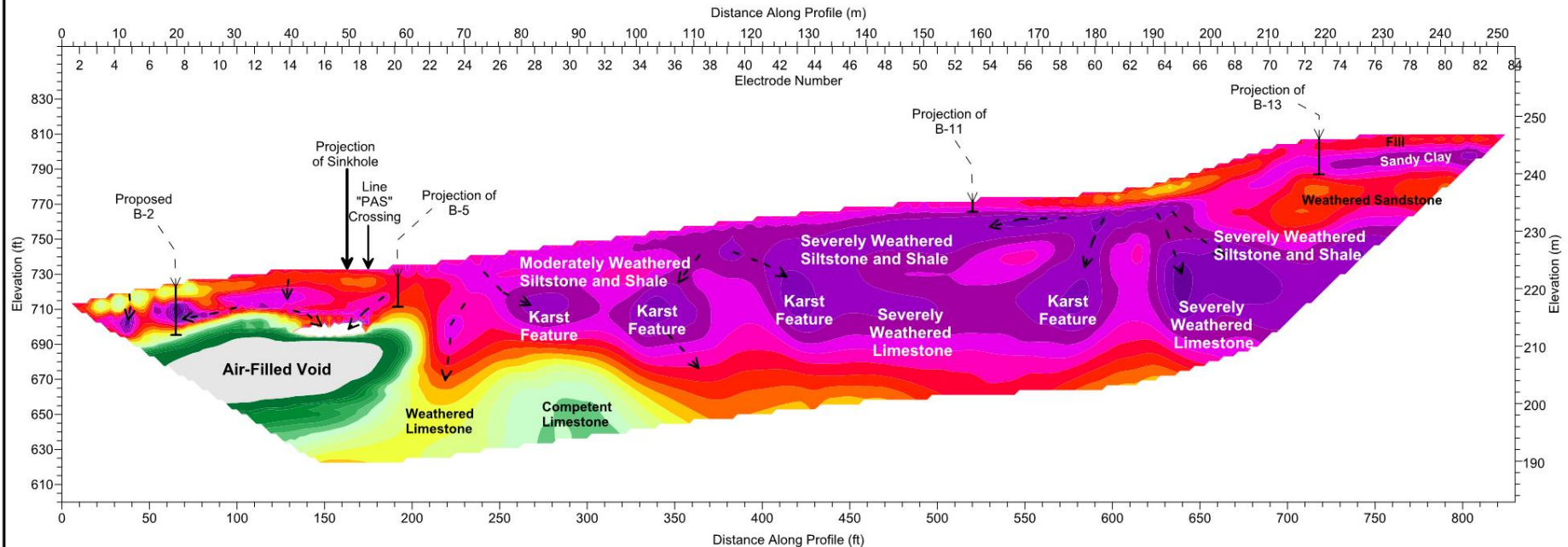
# ELECTRO RESISTIVITY TOMOGRAPHY - ORIGINAL

**South**

Easting: 3128816 ft.  
Northing: 1213875 ft.

**North**

Easting: 3129107 ft.  
Northing: 1214632 ft.

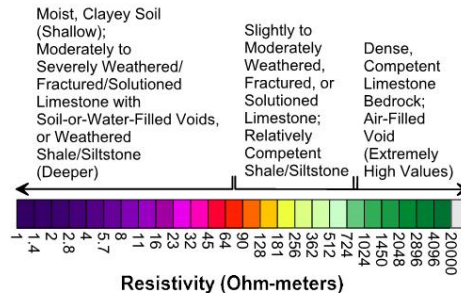


Interpreted Top of Bedrock  
from the Resistivity Data

Possible Water  
Flow Pathway

## PROCESSING STATISTICS

Dipole-Dipole Array  
Number of Iterations: 6  
RMS Error: 6.98 %  
Total Data Points in Model: 1166  
Maximum Misfit: 43.4 %  
Electrode Spacing: 10 ft. (3.05 m.)



## Resistivity Profile Line PAM

Karst Imaging  
Paoli Municipal Airport  
Paoli, Orange County, Indiana  
MUNDELL PROJECT NO. M15010

FIGURE

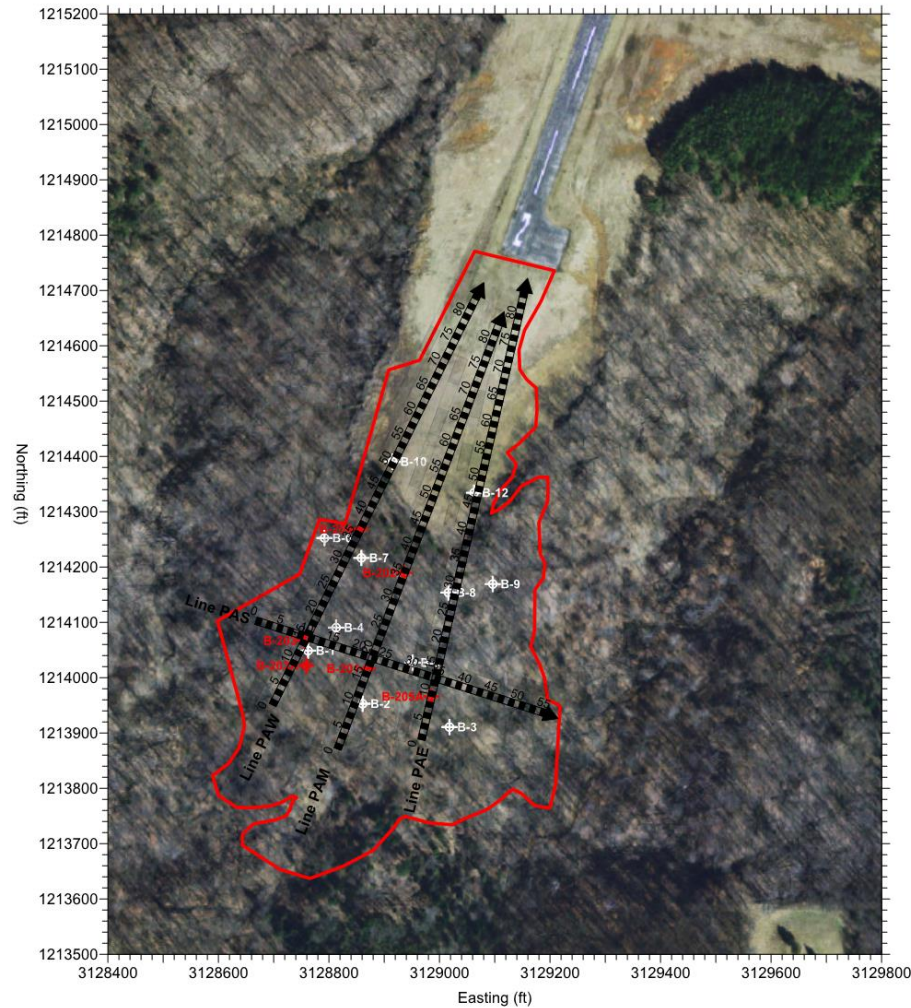
7



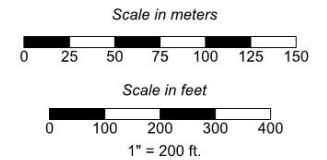
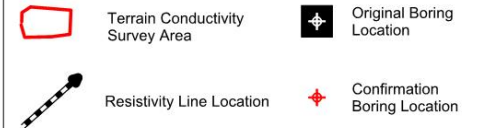
110 South Downey Avenue  
Indianapolis, Indiana 46219  
317-630-9060, fax 317-630-9065  
www.MundellAssociates.com



# ADDITIONAL BORING B-203



## LEGEND



## NOTES:

1. Site map is provided for site reference only. No claim is made as to the accuracy or completeness of this information.
2. Coordinates are referenced according to Indiana State Plane West (feet), NAD83 datum.
3. Boring locations are approximate. Their locations were determined based on the *Boring Plan Runway Extension Area* provided by CARDNO.

**Updated Site Map**  
Karst Imaging  
Paoli Municipal Airport  
Paoli, Orange County, Indiana  
MUNDELL PROJECT NO. M15010

FIGURE

1



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# ADDITIONAL BORING B-203



Table 2: Downhole Photos  
Borehole B-203

Project: Paoli Municipal Airport  
Location: Paoli, Orange County, Indiana  
Mundell Project No. M15010

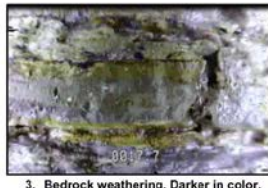
Date Inspected: 5/20/15



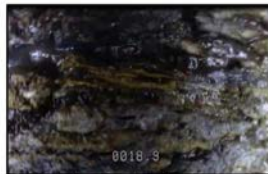
1. Bottom of Casing



2. Beginning of weathered zone (vuggy, highly fractured, heterogeneous sandstone/shale/siltstone, blue/gray to tan/orange to white in color)



3. Bedrock weathering. Darker in color, wet vuggy texture and fissile type texture



4. Continuation of weathered region, dark in color, vuggy, and moist



5. Competent coarse grained limestone, oolitic texture



6. Fracture/flow pathway present



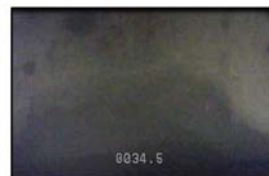
7. Relatively clean/competent limestone, coarse grained



8. Start of void



9. Water table, clay particles clouding the water



10. Water cloudy with sediment



11. End of boring, drilling sediment



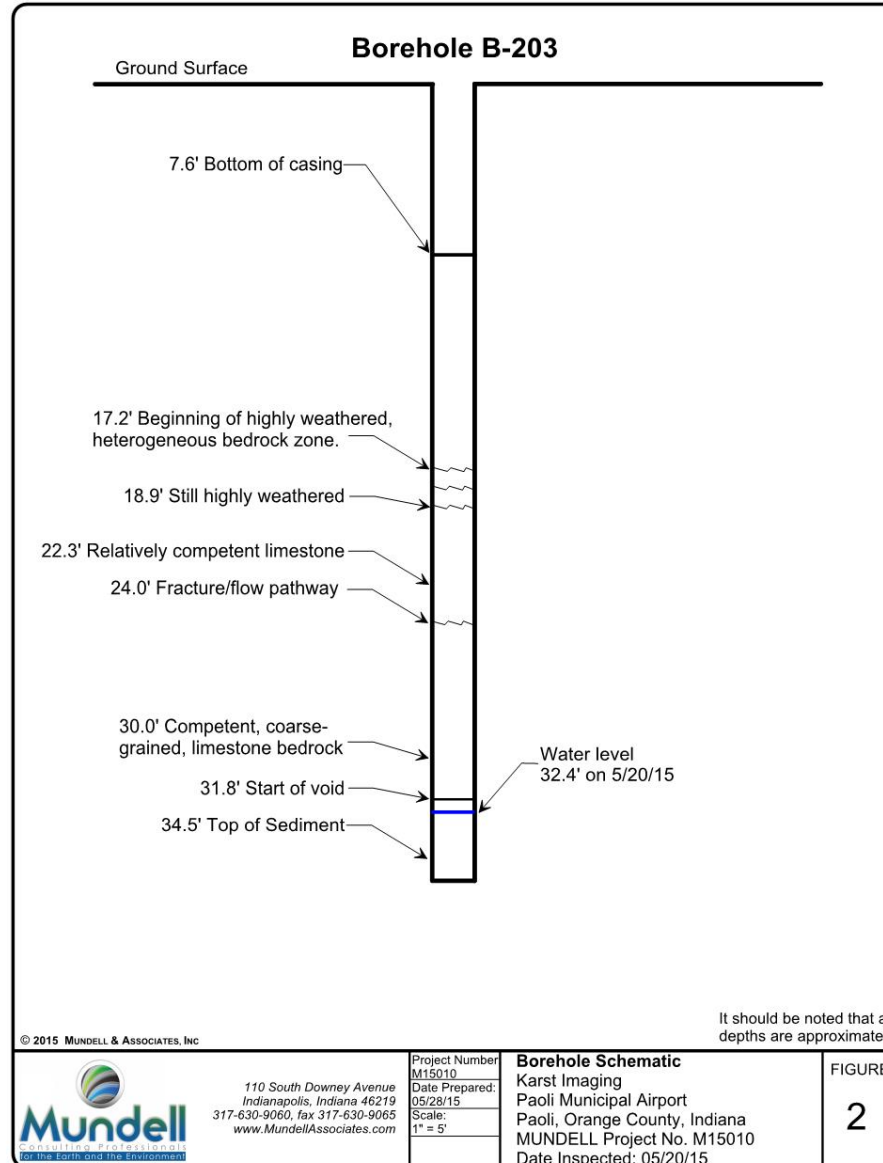
12. Mundell preparing downhole video camera for data collection



13. Downhole Video camera being lowered into borehole B-203



# ADDITIONAL BORING B-203



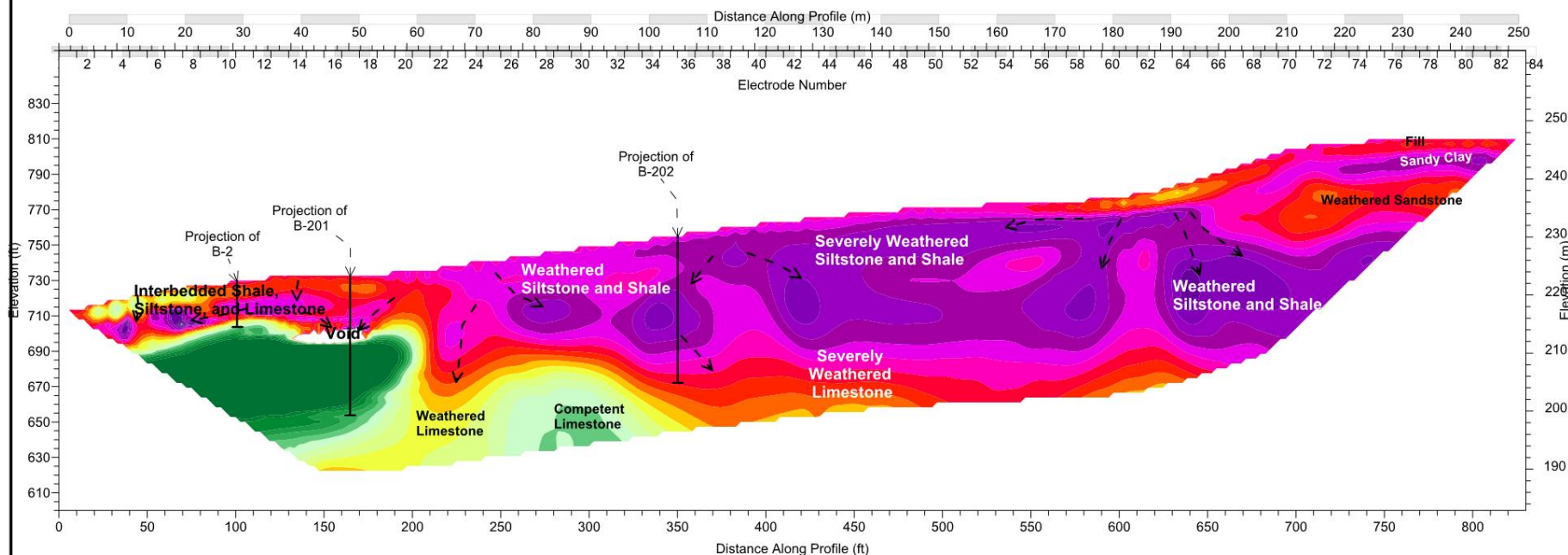
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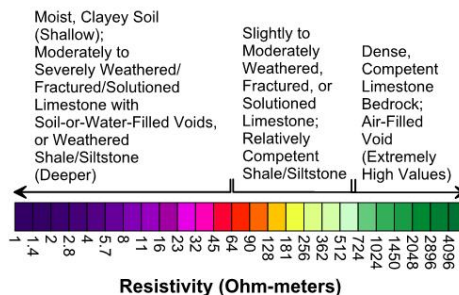


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## Revised Resistivity Profile Line PAM

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FIGURE

4



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## Paoli: small airport and a big hole!

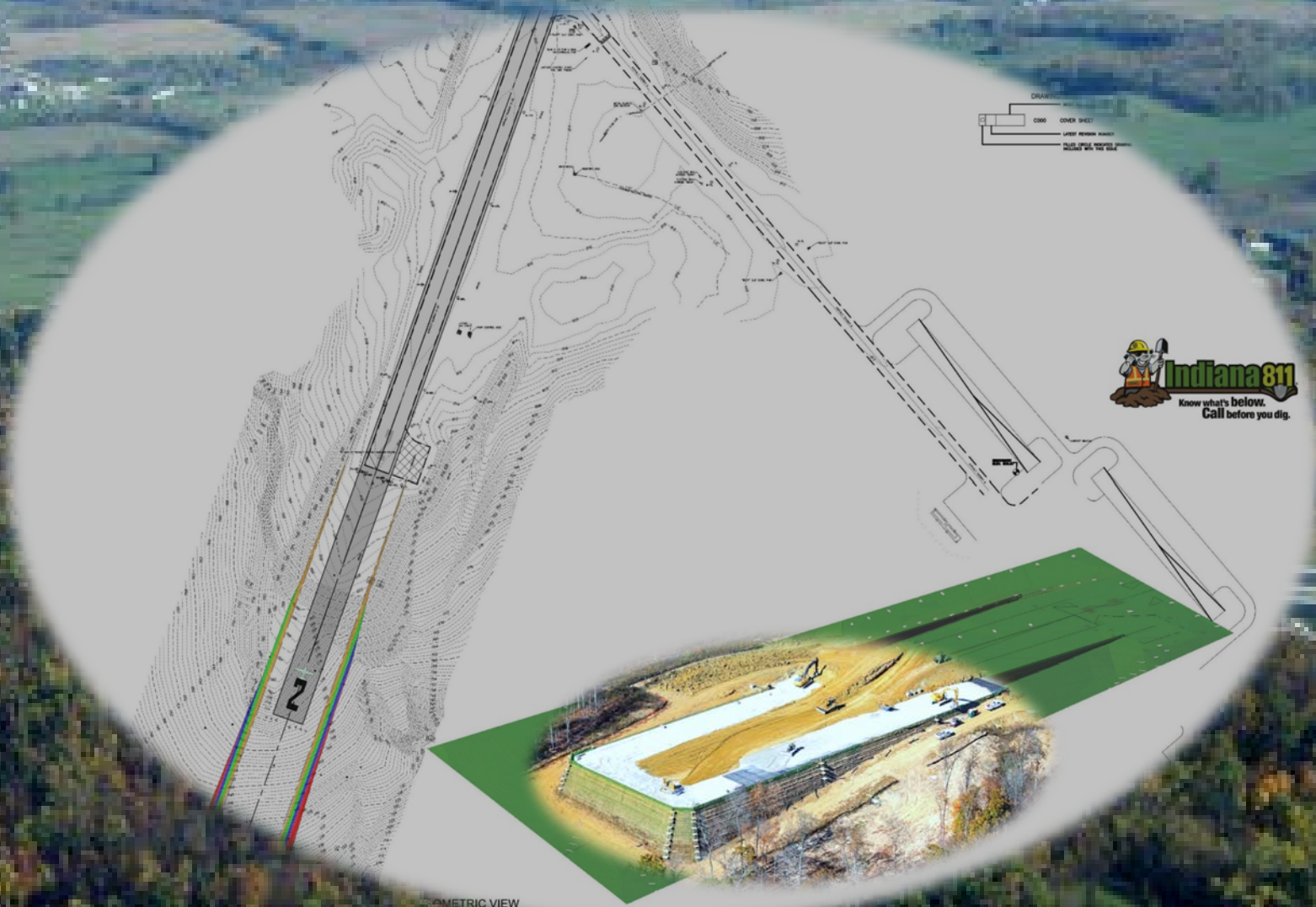


# Start of Phase II Construction Activities





# Four Phases of Construction

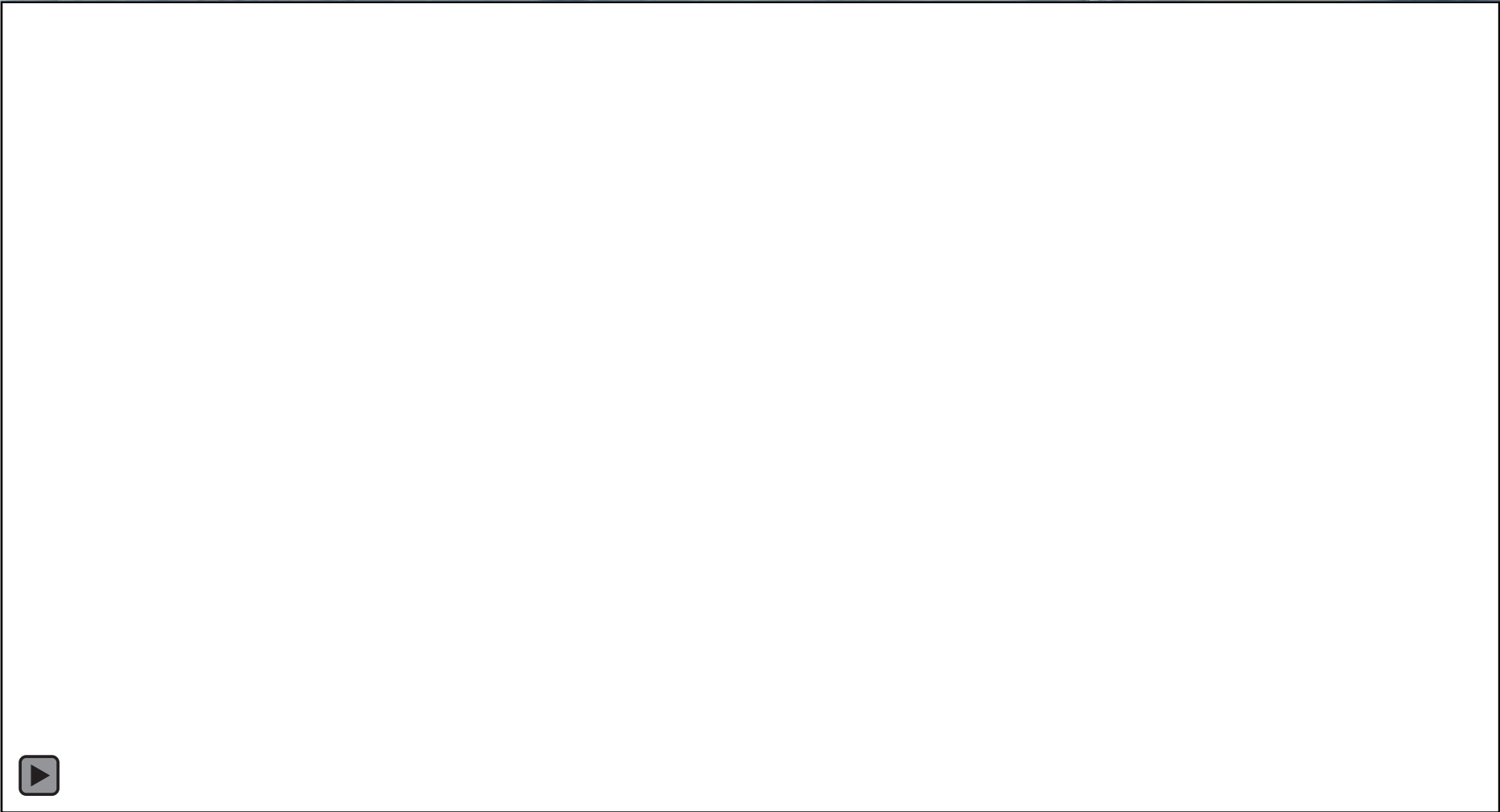


# Piper PA-28R-201 Landing on Runway 2

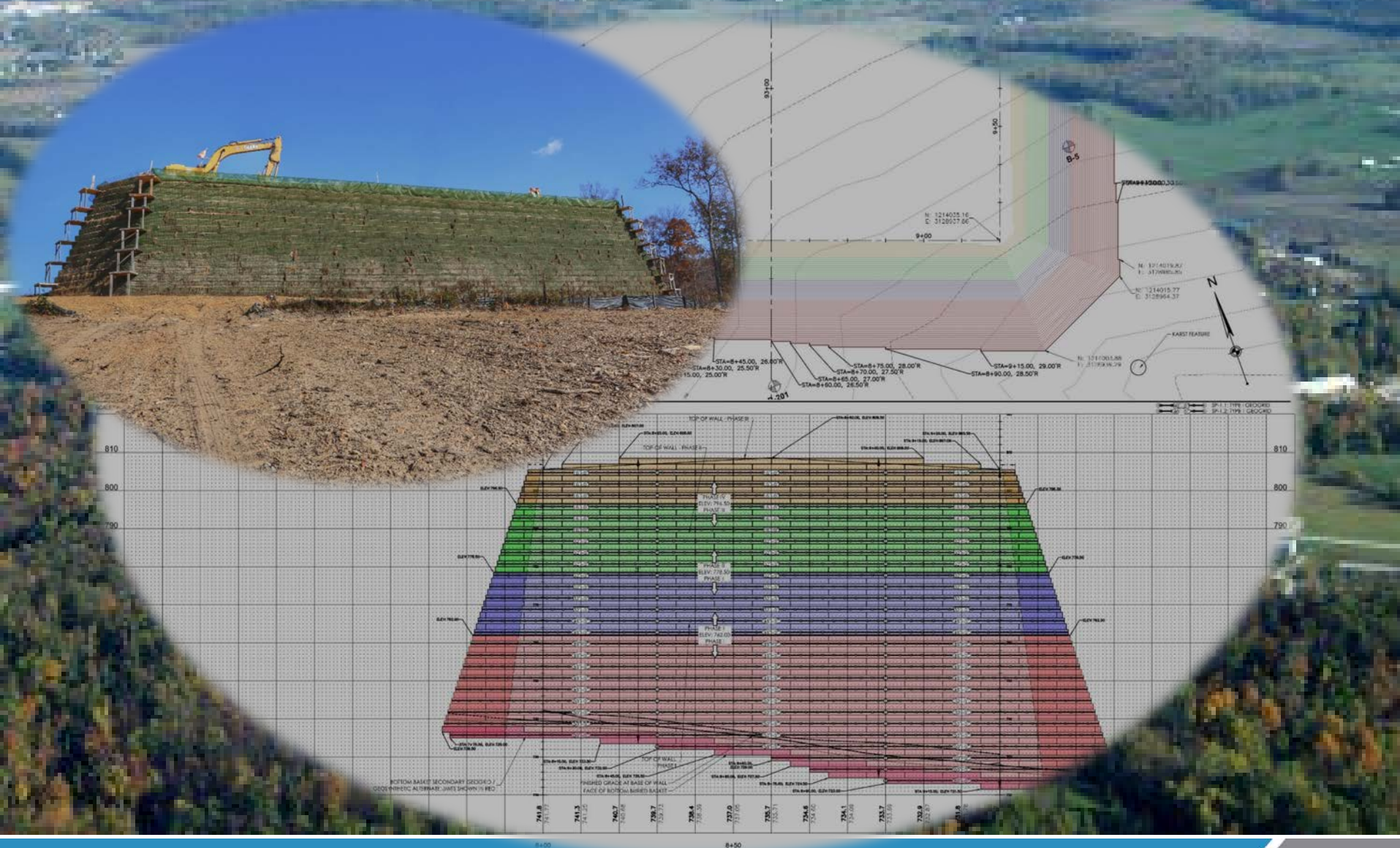




# UAV 3D Model of Phase II Construction Completion



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# UAV VIDEO – PHASE II COMPLETION







  
WOOLPERT

